CHAPTER 71

Configuring AnyConnect VPN Client Connections

This chapter describes how to configure AnyConnect VPN Client Connections and includes the following topics:

Information About AnyConnect VPN Client Connections

The Cisco AnyConnect SSL VPN Client provides secure SSL connections to the adaptive security appliance for remote users. Without a previously-installed client, remote users enter the IP address in their browser of an interface configured to accept SSL VPN connections. Unless the adaptive security appliance is configured to redirect http:// requests to https://, users must enter the URL in the form https://<*address*>.

After entering the URL, the browser connects to that interface and displays the login screen. If the user satisfies the login and authentication, and the adaptive security appliance identifies the user as requiring the client, it downloads the client that matches the operating system of the remote computer. After downloading, the client installs and configures itself, establishes a secure SSL connection and either remains or uninstalls itself (depending on the configuration) when the connection terminates.

In the case of a previously installed client, when the user authenticates, the adaptive security appliance examines the revision of the client, and upgrades the client as necessary.

When the client negotiates an SSL VPN connection with the adaptive security appliance, it connects using Transport Layer Security (TLS), and optionally, Datagram Transport Layer Security (DTLS). DTLS avoids latency and bandwidth problems associated with some SSL connections and improves the performance of real-time applications that are sensitive to packet delays.

The AnyConnect client can be downloaded from the adaptive security appliance, or it can be installed manually on the remote PC by the system administrator. For more information about installing the client manually, see the *Cisco AnyConnect VPN Client Administrator Guide*.

The adaptive security appliance downloads the client based on the group policy or username attributes of the user establishing the connection. You can configure the adaptive security appliance to automatically download the client, or you can configure it to prompt the remote user about whether to download the client. In the latter case, if the user does not respond, you can configure the adaptive security appliance to either download the client after a timeout period or present the login page.

Licensing Requirements for AnyConnect Connections

The following table shows the licensing requirements for this feature:

Model	License Requirement
ASA 5505	AnyConnect Premium SSL VPN Edition license[1]: • Base License: 2 sessions (10 combined IPSec and SSL VPN[2]). • Security Plus License: 2 sessions (25 combined IPSec and SSL VPN[2]). • *Optional permanent or time-based licenses: 10 or 25 sessions.* • *Shared licenses are not supported.*[3]
ASA 5510	AnyConnect Premium SSL VPN Edition license[1]: • Base and Security Plus License: 2 sessions (250 combined IPSec and SSL VPN[2]). • *Optional permanent or time-based licenses: 10, 25, 50, 100, or 250 sessions.* • *Optional Shared licenses*[3]*: Participant or Server. For the Server license, 500-50,000 in increments of 500 and 50,000-545,000 in increments of 1000.*
ASA 5520	AnyConnect Premium SSL VPN Edition license[1]: • Base License: 2 sessions (750 combined IPSec and SSL VPN[2]). • *Optional permanent or time-based licenses: 10, 25, 50, 100, 250, 500, or 750 sessions.* • *Optional Shared licenses*[3]*: Participant or Server. For the Server license, 500-50,000 in increments of 500 and 50,000-545,000 in increments of 1000.*
ASA 5540	AnyConnect Premium SSL VPN Edition license[1]: • Base License: 2 sessions (5000 combined IPSec and SSL VPN[2]). • *Optional permanent or time-based licenses: 10, 25, 50, 100, 250, 500, 750, 1000, or 2500 sessions.* • *Optional Shared licenses*[3]*: Participant or Server. For the Server license, 500-50,000 in increments of 500 and 50,000-545,000 in increments of 1000.*
ASA 5550, 5580	AnyConnect Premium SSL VPN Edition license[1]: • Base License: 2 sessions (5000 combined IPSec and SSL VPN[2]). • *Optional permanent or time-based licenses: 10, 25, 50, 100, 250, 500, 750, 1000, 2500, or 5000 sessions.* • *Optional Shared licenses*[3]*: Participant or Server. For the Server license, 500-50,000 in increments of 500 and 50,000-545,000 in increments of 1000.*

1. If you start a clientless SSL VPN session and then start an AnyConnect client session from the portal, 1 session is used in total. However, if you start the AnyConnect client first (from a standalone client, for example) and then log into the clientless SSL VPN portal, then 2 sessions are used.
2. Although the maximum IPSec and SSL VPN sessions add up to more than the maximum VPsN sessions, the combined sessions should not exceed the VPN session limit. If you exceed the maximum VPN sessions, you can overload the adaptive security appliance, so be sure to size your network appropriately.

3. A shared license lets the adaptive security appliance act as a shared license server for multiple client adaptive security appliances. The shared license pool is large, but the maximum number of sessions used by each individual adaptive security appliance cannot exceed the maximum number listed for permanent licenses.

Guidelines and Limitations

This section includes the guidelines and limitations for this feature.

Remote PC System Requirements

The AnyConnect client supports the following operating systems on the remote PC:

- Microsoft Vista
- Microsoft Windows 2000
- Microsoft Windows XP
- MAC Intel
- MAC Power PC
- Linux

The legacy SSL VPN Client (SVC) supports the following operating systems on the remote PC:

- Microsoft Windows 2000
- Microsoft Windows XP

Context Mode Guidelines

Supported in single context mode. Multiple context mode is not supported.

Firewall Mode Guidelines

Supported only in routed firewall mode. Transparent mode is not supported.

Failover Guidelines

L2TP over IPsec sessions are not supported by stateful failover.

Remote HTTPS Certificates Limitation

The adaptive security appliance does not verify remote HTTPS certificates.

Configuring AnyConnect Connections

This section describes prerequisites, restrictions, and detailed tasks to configure the adaptive security appliance to accept AnyConnect VPN client connections, and includes the following topics:

- Configuring the Adaptive Security Appliance to Web-Deploy the Client, page 71-4
- Enabling Permanent Client Installation, page 71-6

Configuring the Adaptive Security Appliance to Web-Deploy the Client

The section describes the steps to configure the adaptive security appliance to web-deploy the AnyConnect client.

Prerequisites

Copy the client image package to the adaptive security appliance using TFTP or another method.

Detailed Steps

	Command	Purpose

Step 1	**svc image** *filename order*
	
	Example:
	`hostname(config-webvpn)# svc image anyconnect-win-2.3.0254-k9.pkg 1`
	`hostname(config-webvpn)# svc image anyconnect-macosx-i386-2.3.0254-k9.pkg 2`
	`hostname(config-webvpn)# svc image anyconnect-linux-2.3.0254-k9.pkg 3`
		Identifies a file on flash as an SSL VPN client package file.
		
		The adaptive security appliance expands the file in cache memory for downloading to remote PCs. If you have multiple clients, assign an order to the client images with the order argument. If you receive the error message *ERROR: Unable to load SVC image*, use the **cache-fs limit** command to adjust the size of cache memory.
		
		The security appliance downloads portions of each client in the order you specify until it matches the operating system of the remote PC. Therefore, assign the lowest number to the image used by the most commonly encountered operating system.
		
		Note You must issue the **svc enable** command after configuring the AnyConnect images with the **svc image** *filename* command. If you do not enable the **svc enable** command, AnyConnect will not operate as expected, and the **show webvpn svc** command shows the SSL VPN client as not enabled rather than listing the installed AnyConnect packages.

Step 2	**enable** *interface*
	
	Example:
	`hostname(config)# webvpn`
	`hostname(config-webvpn)# enable outside`
		Enables clientless connections on an interface.

	Command	Purpose
Step 3	**svc enable** **Example:** `hostname(config)# svc enable`	Without issuing this command, AnyConnect does not function as expected, and a **show webvpn svc** command shows that the SSL VPN is not enabled, instead of listing the installed AnyConnect packages.
Step 4	**ip local pool** *poolname startaddr-endaddr* **mask** *mask* **Example:** `hostname(config)# ip local pool vpn_users 209.165.200.225-209.165.200.254 mask 255.255.255.224`	(Optional) Creates an address pool. You can use another method of address assignment, such as DHCP and/or user-assigned addressing.

Step 5	**address-pool** *poolname*
	
	Example:
	`hostname(config)# tunnel-group telecommuters general-attributes`
	`hostname(config-tunnel-general)# address-pool vpn_users`
		Assigns an address pool to a tunnel group.

Step 6	**default-group-policy** *name* **Example:** `hostname(config-tunnel-general)# default-group-policy sales`	Assigns a default group policy to the tunnel group.

Step 7	**group-alias** *name* **enable**
	
	Example:
	`hostname(config)# tunnel-group telecommuters webvpn-attributes`
	`hostname(config-tunnel-webvpn)# group-alias sales_department enable`
		Creates and enables a group alias that displays in the group list on the login page of the clientless portal.

Step 8	**tunnel-group-list enable**
	
	Example:
	`hostname(config)# webvpn`
	`hostname(config-webvpn)# tunnel-group-list enable`
		Enables the display of the tunnel-group list on the clientless portal login page.

Step 9	**vpn-tunnel-protocol svc**
	
	Example:
	`hostname(config)# group-policy sales attributes`
	`hostname(config-group-policy)# webvpn`
	`hostname(config-group-webvpn)# vpn-tunnel-protocol svc`
		Specifies SSL as a permitted VPN tunneling protocol for the group or user. You can also specify additional protocols. For more information, see the **vpn-tunnel-protocol** command in the *Cisco ASA 5500 Series Command Reference*.
		
		For more information about assigning users to group policies, see Chapter 6, "*Configuring Connection Profiles, Group Policies, and Users.*" of the *Cisco ASA 5500 Series Configuration Guide using the CLI*.

Enabling Permanent Client Installation

Enabling permanent client installation disables the automatic uninstalling feature of the client. The client remains installed on the remote computer for subsequent connections, reducing the connection time for the remote user.

To enable permanent client installation for a specific group or user, use the **svc keep-installer** command from either the group-policy or username webvpn mode:

```
svc keep-installer installed
```

The default is that permanent installation of the client is enabled. The client remains on the remote computer at the end of the session. The following example configures the existing group-policy *sales* to remove the client on the remote computer at the end of the session:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-policy)# svc keep-installer installed none
```

Configuring DTLS

Datagram Transport Layer Security (DTLS) allows the AnyConnect client establishing an SSL VPN connection to use two simultaneous tunnels—an SSL tunnel and a DTLS tunnel. Using DTLS avoids latency and bandwidth problems associated with SSL connections and improves the performance of real-time applications that are sensitive to packet delays.

By default, DTLS is enabled when SSL VPN access is enabled on an interface. If you disable DTLS, SSL VPN connections connect with an SSL VPN tunnel only.

Note In order for DTLS to fall back to a TLS connection, Dead Peer Detection (DPD) must be enabled. If you do not enable DPD, and the DTLS connection experiences a problem, the connection terminates instead of falling back to TLS. For more information on enabling DPD, see the "Enabling and Adjusting Dead Peer Detection" section on page 71-13.

You can disable DTLS for all AnyConnect client users with the **enable** command **tls-only** option in webvpn configuration mode:

```
enable interface tls-only
```

For example:

```
hostname(config-webvpn)# enable outside tls-only
```

By default, DTLS is enabled for specific groups or users with the **svc dtls enable** command in group policy webvpn or username webvpn configuration mode:

```
[no] svc dtls enable
```

If you need to disable DTLS, use the **no** form of the command. For example:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# no svc dtls enable
```

Prompting Remote Users

You can enable the adaptive security appliance to prompt remote SSL VPN client users to download the client with the **svc ask** command from group policy webvpn or username webvpn configuration mode:

```
[no] svc ask {none | enable [default {webvpn | svc} timeout value]}
```

The **svc ask enable** command prompts the remote user to download the client or go to the clientless portal page and waits indefinitely for user response.

The **svc ask enable default svc** command immediately downloads the client.

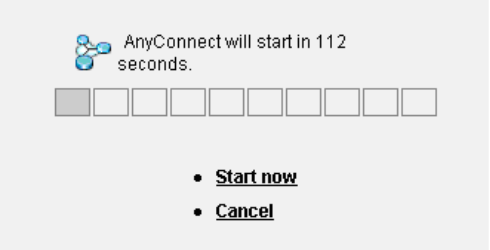
The **svc ask enable default webvpn** command immediately goes to the portal page.

The **svc ask enable default svc timeout** *value* command prompts the remote user to download the client or go to the clientless portal page and waits the duration of *value* before taking the default action—downloading the client.

The **svc ask enable default clientless timeout** *value* command prompts the remote user to download the client or go to the clientless portal page, and waits the duration of *value* before taking the default action—displaying the clientless portal page.

Figure 71-1 shows the prompt displayed to remote users when either the **default svc timeout** *value command* or the **default webvpn timeout** *value* command is configured:

Figure 71-1 Prompt Displayed to Remote Users for SSL VPN Client Download



The following example configures the adaptive security appliance to prompt the user to download the client or go to the clientless portal page and wait 10 seconds for a response before downloading the client:

```
hostname(config-group-webvpn)# svc ask enable default svc timeout 10
```

Enabling AnyConnect Client Profile Downloads

An AnyConnect client profile is a group of configuration parameters, stored in an XML file, that the client uses to configure the connection entries that appear in the client user interface. These parameters (XML tags) include the names and addresses of host computers and settings to enable additional client features.

The AnyConnect client installation includes a profile template, named *AnyConnectProfile.tmpl*, that you can edit with a text editor and use as a basis to create other profile files. You can also set advanced parameters that are not available through the user interface. The installation also includes a complete XML schema file, named *AnyConnectProfile.xsd*.

After creating a profile, you must load the file on the adaptive security appliance and configure the adaptive security appliance to download it to remote client PCs.

To edit a profile and enable the adaptive security appliance to download it to remote clients, perform the following steps:

Step 1 Retrieve a copy of the profile file (AnyConnectProfile.tmpl) from a client installation. Table 71-1 shows the installation path for each operating system.

Table 71-1 Operating System and Profile File Installation Path

Operating System	Installation Path
Windows Vista	%ALLUSERSPROFILE%\Cisco\Cisco AnyConnect VPN Client\Profile, which refers to the environmental variable by the same name for Windows Vista. In most installations, this is C:\Program Files.
Windows XP and 2000	%ALLUSERSPROFILE%/Application Data/Cisco/Cisco AnyConnect VPN Client/Profile, which refers to the environmental variable by the same name for Windows XP and 2000. In most installations, this is C:\Program Files.
Linux	/opt/cisco/vpn/profile
Mac OS X	/opt/cisco/vpn/profile

Step 2 Edit the profile file. The following example shows the contents of the profile file (AnyConnectProfile.tmpl) for Windows:

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
    This is a template file that can be configured to support the
    identification of secure hosts in your network.

    The file needs to be renamed to cvcprofile.xml (for now).

    There is an ASA command to import updated profiles for downloading to
    client machines.  Provide some basic instruction.....
-->
<Configuration>
    <ClientInitialization>
        <UseStartBeforeLogon>false</UseStartBeforeLogon>
    </ClientInitialization>
    <HostProfile>
        <HostName></HostName>
        <HostAddress></HostAddress>
    </HostProfile>
    <HostProfile>
        <HostName></HostName>
        <HostAddress></HostAddress>
    </HostProfile>
</Configuration>
```

The <HostProfile> tags are frequently edited so that the AnyConnect client displays the names and addresses of host computers for remote users. The following example shows the <HostName> and <HostAddress> tags, with the name and address of a host computer inserted:

```
    <HostProfile>
        <HostName>Sales_gateway</HostName>
        <HostAddress>209.165.200.225</HostAddress>
    </HostProfile>
```

Step 3 Load the profile file into flash memory on the adaptive security appliance, then use the **svc profiles** command from webvpn configuration mode to identify the file as a client profile to load into cache memory:

[no] svc profiles *name path}*

After the file is loaded into cache memory, the profile is available to group policies and username attributes of client users.

In the following example, the user previously created two new profile files (sales_hosts.xml and engineering_hosts.xml) from the AnyConnectProfile.tmpl file provided in the client installation and uploaded them to flash memory. Then the user specifies these files as profiles for use by group policies, specifying the names *sales* and *engineering*:

```
hostname(config-webvpn)# svc profiles sales disk0:/sales_hosts.xml
hostname(config-webvpn)# svc profiles engineering disk0:/engineering_hosts.xml
```

Entering the **dir cache:stc/profiles** command shows the profiles loaded into cache memory:

```
hostname(config-webvpn)# dir cache:/stc/profiles

Directory of cache:stc/profiles/

0      ----  774         11:54:41 Nov 22 2006  engineering.xml
0      ----  774         11:54:29 Nov 22 2006  sales.xml

2428928 bytes total (18219008 bytes free)
hostname(config-webvpn)#
```

Step 4 Enter group policy webvpn or username attributes webvpn configuration mode and specify a profile for the group or user with the **svc profiles** command:

[no] svc profiles *{***value** *profile* | **none***}*

In the following example, the user follows the **svc profiles value** command with a question mark (**?**) to view the available profiles. Then the user configures the group policy to use the profile *sales*:

```
hostname(config-group-webvpn)# svc profiles value ?

config-group-webvpn mode commands/options:
Available configured profile packages:
  engineering
  sales
hostname(config-group-webvpn)# svc profiles sales
hostname(config-group-webvpn)#
```

Enabling Additional AnyConnect Client Features

To minimize download time, the client only requests downloads (from the adaptive security appliance) of the core modules that it needs. As additional features become available for the AnyConnect client, you need to update the remote clients in order for them to use the features.

To enable new features, you must specify the new module names using the **svc modules** command from group policy webvpn or username webvpn configuration mode:

[no] **svc modules** {**none** | **value** *string*}

Separate multiple strings with commas.

For a list of values to enter for each client feature, see the release notes for the Cisco AnyConnect VPN Client.

Enabling Start Before Logon

Start Before Logon (SBL) allows login scripts, password caching, drive mapping, and more, for the AnyConnect client installed on a Windows PC. For SBL, you must enable the adaptive security appliance to download the module which enables graphical identification and authentication (GINA) for the AnyConnect client. To enable SBL, perform the following steps:

Step 1 Enable the adaptive security appliance to download the GINA module for VPN connection to specific groups or users using the **svc modules** *vpngina* command from group policy webvpn or username webvpn configuration modes.

In the following example, the user enters group-policy attributes mode for the group policy *telecommuters*, enters webvpn configuration mode for the group policy, and specifies the string *vpngina*:

```
hostname(config)# group-policy telecommuters attributes
hostname(config-group-policy)# webvpn
hostame(config-group-webvpn)# svc modules value vpngina
```

Step 2 Retrieve a copy of the client profiles file (AnyConnectProfile.tmpl). For information on the location of the profiles file for each operating system, see Table 71-1 on page 71-8.

Step 3 Edit the profiles file to specify that SBL is enabled. The example below shows the relevant portion of the profiles file (AnyConnectProfile.tmpl) for Windows:

```
<Configuration>
    <ClientInitialization>
        <UseStartBeforeLogon>false</UseStartBeforeLogon>
    </ClientInitialization>
```

The <UseStartBeforeLogon> tag determines whether the client uses SBL. To turn SBL on, replace *false* with *true*. The example below shows the tag with SBL turned on:

```
    <ClientInitialization>
        <UseStartBeforeLogon>true</UseStartBeforeLogon>
    </ClientInitialization>
```

Step 4 Save the changes to AnyConnectProfile.tmpl and update the profile file for the group or user on the adaptive security appliance using the **svc profile** command from webvpn configuration mode. For example:

```
hostname(config-webvpn)# svc profiles sales disk0:/sales_hosts.xml
```

Translating Languages for AnyConnect User Messages

The adaptive security appliance provides language translation for the portal and screens displayed to users that initiate browser-based, Clientless SSL VPN connections, as well as the interface displayed to Cisco AnyConnect VPN Client users.

This section describes how to configure the adaptive security appliance to translate these user messages and includes the following topics:

- Understanding Language Translation, page 71-11
- Creating Translation Tables, page 71-11

Understanding Language Translation

Functional areas and their messages that are visible to remote users are organized into translation domains. All messages displayed on the user interface of the Cisco AnyConnect VPN Client are located in the AnyConnect domain.

The software image package for the adaptive security appliance includes a translation table template for the AnyConnect domain. You can export the template, which creates an XML file of the template at the URL you provide. The message fields in this file are empty. You can edit the messages and import the template to create a new translation table object that resides in flash memory.

You can also export an existing translation table. The XML file created displays the messages you edited previously. Reimporting this XML file with the same language name creates an new version of the translation table object, overwriting previous messages. Changes to the translation table for the AnyConnect domain are immediately visible to AnyConnect client users.

Creating Translation Tables

The following procedure describes how to create translation tables for the AnyConnect domain:

Step 1 Export a translation table template to a computer with the **export webvpn translation-table** command from privileged EXEC mode.

In the following example, the **show webvpn translation-table** command shows available translation table templates and tables.

```
hostname# show import webvpn translation-table
Translation Tables' Templates:
customization
AnyConnect
CSD
PortForwarder
url-list
webvpn
Citrix-plugin
RPC-plugin
Telnet-SSH-plugin
VNC-plugin

Translation Tables:
```

Then the user exports the translation table for the AnyConnect translation domain. The filename of the XML file created is named *client* and contains empty message fields:

```
hostname# export webvpn translation-table AnyConnect template
tftp://209.165.200.225/client
```

In the next example, the user exports a translation table named *zh*, which was previously imported from a template. zh is the abbreviation by Microsoft Internet Explorer for the Chinese language.

```
hostname# export webvpn translation-table customization language zh
tftp://209.165.200.225/chinese_client
```

Step 2 Edit the Translation Table XML file. The following example shows a portion of the AnyConnect template. The end of this output includes a message ID field (msgid) and a message string field (msgstr) for the message *Connected*, which is displayed on the AnyConnect client GUI when the client establishes a VPN connection. The complete template contains many pairs of message fields:

```
# SOME DESCRIPTIVE TITLE.
# Copyright (C) YEAR THE PACKAGE'S COPYRIGHT HOLDER
```

```
# This file is distributed under the same license as the PACKAGE package.
# FIRST AUTHOR <EMAIL@ADDRESS>, YEAR.
#
#, fuzzy
msgid ""
msgstr ""
"Project-Id-Version: PACKAGE VERSION\n"
"Report-Msgid-Bugs-To: \n"
"POT-Creation-Date: 2006-11-01 16:39-0700\n"
"PO-Revision-Date: YEAR-MO-DA HO:MI+ZONE\n"
"Last-Translator: FULL NAME <EMAIL@ADDRESS>\n"
"Language-Team: LANGUAGE <LL@li.org>\n"
"MIME-Version: 1.0\n"
"Content-Type: text/plain; charset=CHARSET\n"
"Content-Transfer-Encoding: 8bit\n"

#: C:\cygwin\home\<user>\cvc\main\Api\AgentIfc.cpp:23
#: C:\cygwin\home\<user>\cvc\main\Api\check\AgentIfc.cpp:22
#: C:\cygwin\home\<user>\cvc\main\Api\save\AgentIfc.cpp:23
#: C:\cygwin\home\<user>\cvc\main\Api\save\AgentIfc.cpp~:20
#: C:\cygwin\home\<user>\cvc\main\Api\save\older\AgentIfc.cpp:22
msgid "Connected"
msgstr ""
```

The msgid contains the default translation. The msgstr that follows msgid provides the translation. To create a translation, enter the translated text between the quotes of the msgstr string. For example, to translate the message “Connected” with a Spanish translation, insert the Spanish text between the quotes:

```
msgid "Connected"
msgstr "Conectado"
```

Step 3 Be sure to save the file.

Step 4 Import the translation table using the **import webvpn translation-table** command from privileged EXEC mode. Be sure to specify the name of the new translation table with the abbreviation for the language that is compatible with the browser.

In the following example, the XML file is imported *es-us*—the abbreviation used by Microsoft Internet Explorer for Spanish spoken in the United States.

```
hostname# import webvpn translation-table AnyConnect language es-us
tftp://209.165.200.225/client
hostname# !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
hostname# show import webvpn translation-table
Translation Tables' Templates:
AnyConnect
PortForwarder
csd
customization
keepout
url-list
webvpn
Citrix-plugin
RPC-plugin
Telnet-SSH-plugin
VNC-plugin

Translation Tables:
es-us AnyConnect
```

Configuring Advanced SSL VPN Features

The following section describes advanced features that fine-tune SSL VPN connections, and includes the following topics:

Enabling Rekey

When the adaptive security appliance and the SSL VPN client perform a rekey, they renegotiate the crypto keys and initialization vectors, increasing the security of the connection.

To enable the client to perform a rekey on an SSL VPN connection for a specific group or user, use the **svc rekey** command from group-policy and username webvpn modes:

```
[no] svc rekey {method {new-tunnel | none | ssl} | time minutes}
```

The **method new-tunnel** command specifies that the client establishes a new tunnel during rekey.

The **method none** command disables rekey.

The **method ssl** command specifies that SSL renegotiation takes place during rekey.

The **time** *minutes* command specifies the number of minutes from the start of the session, or from the last rekey, until the rekey takes place, from 1 to 10080 (1 week).

In the following example, the client is configured to renegotiate with SSL during rekey, which takes place 30 minutes after the session begins, for the existing group-policy *sales*:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-policy)# svc rekey method ssl
hostname(config-group-policy)# svc rekey time 30
```

Enabling and Adjusting Dead Peer Detection

Dead Peer Detection (DPD) ensures that the adaptive security appliance (gateway) or the client can quickly detect a condition where the peer is not responding, and the connection has failed.

To enable DPD on the adaptive security appliance or client for a specific group or user, and to set the frequency with which either the adaptive security appliance or client performs DPD, use the **svc dpd-interval** command from group-policy or username webvpn mode:

```
svc dpd-interval {[gateway {seconds | none}] | [client {seconds | none}]}
no svc dpd-interval {[gateway {seconds | none}] | [client {seconds | none}]}
```

The **gateway** *seconds* option enables DPD performed by the adaptive security appliance (gateway) and specifies the frequency, from 5 to 3600 seconds, with which the adaptive security appliance (gateway) performs DPD.

The **gateway none** option disables DPD performed by the adaptive security appliance.

The **client** *seconds* option enable DPD performed by the client, and specifies the frequency, from 5 to 3600 seconds, with which the client performs DPD.

The **client none** option disables DPD performed by the client.

To remove the **svc dpd-interval** command from the configuration, use the **no** form of the command:

Note If you enable DTLS, enable DPD also. DPD enables a failed DTLS connection to fallback to TLS. Overwise, the connection terminates.

The following example sets the frequency of DPD performed by the adaptive security appliance to 30 seconds, and the frequency of DPD performed by the client set to 10 seconds for the existing group-policy *sales*:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-policy)# svc dpd-interval gateway 30
hostname(config-group-policy)# svc dpd-interval client 10
```

Enabling Keepalive

You can adjust the frequency of keepalive messages to ensure that an SSL VPN connection through a proxy, firewall, or NAT device remains open, even if the device limits the time that the connection can be idle. Adjusting the frequency also ensures that the client does not disconnect and reconnect when the remote user is not actively running a socket-based application, such as Microsoft Outlook or Microsoft Internet Explorer.

Note Keepalives are enabled by default. If you disable keepalives, in the event of a failover event, SSL VPN client sessions are not carried over to the standby device.

To set the frequency of keepalive messages, use the **svc keepalive** command from group-policy webvpn or username webvpn configuration mode:

[no] svc keepalive {none | *seconds***}**

The **none** keyword disables client keepalive messages.

The *seconds* argument enables the client to send keepalive messages, and specifies the frequency of the messages in the range of 15 to 600 seconds.

The default is keepalive messages are enabled.

Use the **no** form of the command to remove the command from the configuration and cause the value to be inherited:

In the following example, the adaptive security appliance is configured to enable the client to send keepalive messages with a frequency of 300 seconds (5 minutes), for the existing group-policy *sales*:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# svc keepalive 300
```

Using Compression

Compression increases the communications performance between the adaptive security appliance and the client by reducing the size of the packets being transferred for low-bandwidth connections. By default, compression for all SSL VPN connections is enabled on the adaptive security appliance, both at the global level and for specific groups or users.

Note When implementing compression on broadband connections, you must carefully consider the fact that compression relies on loss-less connectivity. This is the main reason that it is not enabled by default on broadband connections.

Compression must be turned-on globally using the **compression svc** command from global configuration mode, and then it can be set for specific groups or users with the **svc compression** command in group-policy and username webvpn modes.

Changing Compression Globally

To change the global compression settings, use the **compression svc** command from global configuration mode:

```
compression svc
no compression svc
```

To remove the command from the configuration, use the **no** form of the command.

In the following example, compression is disabled for all SSL VPN connections globally:

```
hostname(config)# no compression svc
```

Changing Compression for Groups and Users

To change compression for a specific group or user, use the **svc compression** command in the group-policy and username webvpn modes:

```
svc compression {deflate | none}
no svc compression {deflate | none}
```

By default, for groups and users, SSL compression is set to *deflate* (enabled).

To remove the **svc compression** command from the configuration and cause the value to be inherited from the global setting, use the **no** form of the command:

In the following example, compression is disabled for the group-policy sales:

```
hostname(config)# group-policy sales attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# svc compression none
```

Adjusting MTU Size

You can adjust the MTU size (from 256 to 1406 bytes) for SSL VPN connections established by the client with the **svc mtu** command from group policy webvpn or username webvpn configuration mode:

```
[no] svc mtu size
```

This command affects only the AnyConnect client. The legacy Cisco SSL VPN Client (SVC) is not capable of adjusting to different MTU sizes.

The default for this command in the default group policy is **no svc mtu**. The MTU size is adjusted automatically based on the MTU of the interface that the connection uses, minus the IP/UDP/DTLS overhead.

This command affects client connections established in SSL and those established in SSL with DTLS.

Examples The following example configures the MTU size to 1200 bytes for the group policy *telecommuters*:

```
hostname(config)# group-policy telecommuters attributes
hostname(config-group-policy)# webvpn
hostname(config-group-webvpn)# svc mtu 1200
```

Updating SSL VPN Client Images

You can update the client images on the adaptive security appliance at any time using the following procedure:

Step 1 Copy the new client images to the adaptive security appliance using the **copy** command from privileged EXEC mode, or using another method.

Step 2 If the new clientt image files have the same filenames as the files already loaded, reenter the **svc image** command that is in the configuration. If the new filenames are different, uninstall the old files using the **no svc image** command. Then use the **svc image** command to assign an order to the images and cause the adaptive security appliance to load the new images.

Monitoring AnyConnect Connections

To view information about active sessions, use the **show vpn-sessiondb** command:

Command	Purpose
show vpn-sessiondb svc	Displays information about active sessions.
vpn-sessiondb logoff svc	Logs off SSL VPN sessions.

Examples

The Inactivity field shows the elapsed time since an AnyConnect session lost connectivity. If the session is active, 00:00m:00s appears in this field.

```
hostname# show vpn-sessiondb svc

Session Type: SSL VPN Client

Username     : lee
Index        : 1                     IP Addr      : 209.165.200.232
Protocol     : SSL VPN Client        Encryption   : 3DES
Hashing      : SHA1                  Auth Mode    : userPassword
TCP Dst Port : 443                   TCP Src Port : 54230
Bytes Tx     : 20178                 Bytes Rx     : 8662
```

```
Pkts Tx      : 27                    Pkts Rx      : 19
Client Ver   : Cisco STC 1.1.0.117
Client Type  : Internet Explorer
Group        : DfltGrpPolicy
Login Time   : 14:32:03 UTC Wed Mar 20 2007
Duration     : 0h:00m:04s
Inactivity  : 0h:00m:04s
Filter Name  :

hostname# vpn-sessiondb logoff svc
INFO: Number of sessions of type "svc" logged off : 1

hostname# vpn-sessiondb logoff name tester
Do you want to logoff the VPN session(s)? [confirm]
INFO: Number of sessions with name "tester" logged off : 1
```

Logging Off SSL VPN Sessions

To log off all SSL VPN sessions, use the **vpn-sessiondb logoff svc** command in global configuration mode:

vpn-sessiondb logoff svc

The following example logs off all SSL VPN sessions:

```
hostname# vpn-sessiondb logoff svc
INFO: Number of sessions of type “svc” logged off : 1
```

You can log off individual sessions using either the name option or the index option:

vpn-session-db logoff name *name*
vpn-session-db logoff index *index*

The sessions that have been inactive the longest time are marked as idle (and are automatically logged off) so that license capacity is not reached and new users can log in. If the session resumes at a later time, it is removed from the inactive list.

You can find both the username and the index number (established by the order of the client images) in the output of the **show vpn-sessiondb svc** command. The following example shows the username *lee* and index number *1*.

```
hostname# show vpn-sessiondb svc

Session Type : SSL VPN Client

Username              : 1
Index                 : 1                 IP Addr        : 209.165.200.232
Protocol              : SSL VPN Client    Encryption     : 3DES
Hashing               : SHA1              Auth Mode      : userPassword
TCP Dst Port          : 443               TCP Src Port   : 54230
Bytes Tx              : 20178             Bytes Rx       : 8662
Pkts Tx               : 27                Pkts Rx        : 19
Client Ver            : Cisco STC 1.1.0.117
Client Type           : Internet Explorer
Group                 : DfltGrpPolicy
Login Time            : 14:32:03 UTC Wed Mar 26 2007
Duration              : 0h:00m:04s
Inactivity            " 0h:28m:48s
Filter Name           :
```

The following example terminates the session using the **name** option of the **vpn-session-db logoff** command:

```
hostname# vpn-sessiondb logoff name tester
Do you want to logoff the VPN session(s)? [confirm]
INFO: Number of sessions with name “exampleuser” logged off : 0

hostname#
```

Configuration Examples for Enabling AnyConnect Connections

The following example shows how to configure L2TP over IPsec:

```
ip local pool sales_addresses 209.165.202.129-209.165.202.158
aaa-server sales_server protocol radius
crypto ipsec transform-set sales_l2tp_transform esp-3des esp-sha-hmac
crypto ipsec transform-set sales_l2tp_transform mode transport
crypto ipsec security-association lifetime seconds 28800
crypto ipsec security-association lifetime kilobytes 4608000
l2tp tunnel hello 100

group-policy sales_policy internal
group-policy sales_policy attributes
 wins-server value 209.165.201.3 209.165.201.4
 dns-server value 209.165.201.1 209.165.201.2
 vpn-tunnel-protocol l2tp-ipsec
tunnel-group sales_tunnel type remote-access
tunnel-group sales_tunnel general-attributes
 address-pool sales_addresses
 authentication-server-group none
 accounting-server-group sales_server
 default-group-policy sales_policy
tunnel-group sales_tunnel ppp-attributes
 authentication pap
```

Feature History for AnyConnect Connections

Table 71-2 lists the release history for this feature.

Table 71-2 Feature History for AnyConnect Connections

Feature Name	Releases	Feature Information
AnyConnect Connections	8.0(2)	We introduced or modified the following commands: **svc image**, **vpn-tunnel-protocol, vpn-sessiondb**.